

## I. AMENDMENT

Please make the following amendments:

### In the Claims:

Please amend claims 9, 12, 19, 23 and 24 as follows:

B<sup>1</sup>  
9. (Amended) The corn plant of claim 8, further comprising a cytoplasmic or nuclear gene conferring male sterility.

B<sup>2</sup>  
12. (Amended) The tissue culture of claim 11, wherein the regenerable cells are in the form of protoplasts or callus.

B<sup>3</sup>  
19. (Twice Amended) The process of claim 18, further defined as a process of producing hybrid corn seed, comprising crossing a first inbred corn plant with a second, distinct inbred corn plant, wherein said first inbred corn plant is the inbred corn plant LIZL5, a sample of the seed of said inbred corn plant LIZL5 having been deposited under ATCC Accession No. PTA-2192.

23. (Amended) A corn plant produced by the process of claim 21.

B<sup>4</sup>  
24. (Amended) The corn plant of claim 23, wherein the plant is a first generation (F<sub>1</sub>) hybrid corn plant.

## II. RESPONSE TO OFFICE ACTION

### A. Status of the Claims

Claims 1-39 were pending in the case at the time of the Action. Claims 9, 12, 19, 23 and 24 have been amended herein. Support for the amendment to claim 9 can be found at page 48, line 7. Support for the remaining amendments can be found in the claims as filed. A marked copy of the amendments is provided in **Appendix A**. A clean copy of the pending claims

following entry of the amendments is provided in **Appendix B**. Claims 1-39 are now pending and presented for reconsideration.

**B. Claim Objections**

The Action objects to claim 24 under 37 CFR § 1.75(c) as in improper dependent form for failing to further limit the claim from which it depends.

In response, Applicants note that claims 23 and 24 have been amended. Claim 24 now further defines the subject matter of claim 23, as claim 23 is not limited to a hybrid corn plant whereas claim 24 is. The amendments do not narrow the claimed subject matter and accordingly Applicants do not intend to disclaim any subject matter by the amendment.

In view of the foregoing, the objection is now moot and removal thereof is thus respectfully requested.

**C. Rejection of Claims Under 35 U.S.C. §112, Second Paragraph**

The Action rejects claims 9, 12, 19 and 20-24 under 35 U.S.C. §112, second paragraph as allegedly being indefinite for failing to particularly point out the subject matter which Applicants regard as their invention.

(1) The Action alleges that the recitation of “factor” renders claim 9 indefinite. In response, Applicants note that the term “factor” has been replaced with “cytoplasmic or nuclear gene.” Support for the amendment can be found, at least, at page 48, line 7.

In light of the foregoing, Applicants hereby respectfully request that the rejection under 35 U.S.C. §112, second paragraph, be withdrawn.

(2) The Action rejects claim 12 for the recitation of "wherein the regenerable cells comprise protoplasts or callus". In response, Applicants note that the claim has been amended to specify that the cells are in the form of protoplasts or callus.

In light of the foregoing, Applicants hereby respectfully request that the rejection under 35 U.S.C. §112, second paragraph, be withdrawn.

(3) The Action rejects claim 19 as allegedly improperly dependent. In response, it is noted that the claim has been amended to further define the claim from which it depends.

In light of the foregoing, Applicants hereby respectfully request that the rejection under 35 U.S.C. §112, second paragraph, be withdrawn.

(4) The Action rejects claim 20 as allegedly improperly dependent upon claim 19. Applicants respectfully traverse.

The claim is not improperly dependent because it further defines the scope of the claim from which it depends. In particular, the claim further defines the steps involved in crossing in claim 19. Step (e) merely describes the step of crossing in claim 19 and does not comprise an additional method step. There is no basis to conclude that the step of harvesting seeds produced on the emasculated corn plant does not fall within the scope of crossing within claim 19. While the step would not necessarily have to be performed for crossing, one of skill in the art may choose to do so as part of the crossing. Accordingly, the claim is not improperly dependent.

In light of the foregoing, Applicants hereby respectfully request that the rejection under 35 U.S.C. §112, second paragraph, be withdrawn.

**D. Rejection of Claims Under 35 U.S.C. §112, First Paragraph**

The Action has rejected claims 22-28 and 37-39 under 35 U.S.C. §112, first paragraph, as allegedly directed to subject matter which was not supported by a written description in the specification. In particular, the Action alleges that the specification does not demonstrate possession of hybrid corn seed or plants prepared by crossing the inbred corn plant LIZL5 with a second corn plant or single locus conversions of corn plant LIZL5. Applicants respectfully traverse.

Applicants have fully described the claimed subject matter in compliance with the written description requirement of 35 U.S.C. §112, first paragraph. In particular, the specification provides a description of sufficient structural characteristics of hybrid plants having inbred corn plant LIZL5 as one parent to satisfy the written description requirement. For example, the specification provides a detailed description of hybrid 7026255, which was produced with LIZL5 as one inbred parent. Table 4 of the specification gives the performance characteristics for 7026255 and provides comparisons against other hybrid varieties. In Table 5, the morphological traits of 7026255 are given. Similarly, the SSR marker profile and isozyme marker profiles for hybrid 7026255 are given in Tables 8 and 9, respectively. This information, combined with the descriptions of the genetic and morphological characteristics of LIZL5 in the specification, as well as the fact that any hybrid derived from LIZL5 will contain exactly half of its genes from LIZL5, is more than adequate to provide a description of hybrid plants and seeds derived from corn plant LIZL5 in compliance with the written description requirement.

The specification further provides an SSR genetic marker profile of LIZL5 in Table 6. Because corn plant LIZL5 is an inbred corn plant, all hybrid plants having LIZL5 as a parent will contain these same SSR genetic markers and thus will be genetically distinct and identifiable

from any other corn plant on this basis. That is, because LIZL5 is an inbred corn plant, all hybrid corn plants derived therefrom must inherit exactly half of the genetic material of corn plant LIZL5.

The Federal Circuit has noted that such shared identifiable structural features possessed by members of a genus is important to the written description requirement. *The Regents of The University of California v. Eli Lilly and Co.*, 119 F.3d 1559, 1568; 43 USPQ2d 1398, 1406 (Fed. Cir. 1997) (noting that a name alone does not satisfy the written description requirement where “it does not define any structural features commonly possessed by members of the genus that distinguish them from others. One skilled in the art therefore cannot, *as one can do with a fully described genus, visualize or recognize the identity of the members of the genus*” (emphasis added)). Here, all of the members of the claimed genus of hybrids having LIZL5 as one parent share the identical structural feature of having the genetic complement of LIZL5. One of skill in the art could thus readily identify the members of the genus. The written description requirement has therefore been fully complied with.

The Action also rejects claims to single locus conversions of corn plant LIZL5 on the basis that LIZL5 may allegedly be altered in any of its traits and that that the specification does not describe “single locus conversions and single transgenes that have the ability to alter any given maize plant trait.” In response, it is first noted that the relevant claims are directed to corn plant LIZL5 which further comprises a single locus conversion. Such a “single locus converted (conversion) plant” is defined at page 21, lines 6-11 of the specification as follows:

[p]lants which are developed by a plant breeding technique called backcrossing wherein essentially all of the desired morphological and physiological characteristics of an inbred are recovered in addition to the characteristics conferred by the single locus transferred into the inbred *via* the backcrossing technique. A single locus may comprise one gene, or in the case of transgenic

plants, one or more transgenes integrated into the host genome at a single site (locus).

Therefore, the claimed plants comprising a single locus conversion possess "essentially all of the desired morphological and physiological characteristics of [the single gene converted plant]". Applicants have more than adequately described such a plant that comprises essentially all of the desired morphological and physiological characteristics of corn plant LIZL5 by way of the descriptions of LIZL5. To hold otherwise would be to limit Applicants to that subject matter described *ipsis verbis* in the specification. This position is expressly contradictory to Federal Circuit precedent. *In re Gosteli*, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989) (stating that the written description requirement does not require an applicant to "describe exactly the subject matter claimed, [instead] the description must clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed" (citations omitted)) .

The rejection also ignores the substantial description in the specification supporting single locus conversions of LIZL5. For example, at pages 27-28, the methodology for creating single locus converted plants is described. At pages 29-32, numerous single locus traits for creation of single locus converted plants are described, such as those conferring male sterility, waxy starch, herbicide resistance, resistance for bacterial, fungal, or viral disease, insect resistance, male fertility, enhanced nutritional quality, industrial usage, yield stability, and yield enhancement. Many of these traits are also described in PCT Application WO 95/06128, the disclosure of which is incorporated by reference in the current specification. The specification also provides examples of genes conferring male sterility, including those disclosed in U.S. Patent No. 3,861,709, U.S. Patent No. 3,710,511, U.S. Patent No. 4,654,465, U.S. Patent No

5,625,132, and U.S. Patent No. 4,727,219, the disclosures of which were also incorporated by reference in the current application.

At pages 29-30, detailed methodology and compositions are described for introducing male sterility into inbred corn plant LIZL5, including the use of one or more male-fertility restorer genes. Examples of such male-sterility genes and corresponding restorers are given by way of U.S. Patent Nos. 5,530,191, 5,689,041, 5,741,684, and 5,684,242, each of the disclosures of which were incorporated by reference in the current application. Methods for selection of dominant single locus traits are also described at page 30, for example, such as a herbicide resistance trait.

Further described at page 30 of the specification are transgenic single locus conversions, including those created by electroporation (U.S. Patent No. 5,384,253), electrotransformation (U.S. Patent No. 5,371,003), microprojectile bombardment (U.S. Patent No. 5,550,318; U.S. Patent No. 5,736,369, U.S. Patent No. 5,538,880; and PCT Publication WO 95/06128), *Agrobacterium*-mediated transformation (U.S. Patent No. 5,591,616 and E.P. Publication EP672752), direct DNA uptake transformation of protoplasts (Omirulleh *et al.*, 1993) and silicon carbide fiber-mediated transformation (U.S. Patent No. 5,302,532 and U.S. Patent No. 5,464,765).

The use of a single locus trait conferring resistance to the herbicide glyphosate is described at page 31, including a herbicide resistant EPSPS mutation termed *aroA* (U.S. Patent 4,535,060), as well as a mutant maize gene encoding a protein with amino acid changes at residues 102 and 106 (PCT Publication WO 97/04103). Methods for the use of these single locus conversions is also described at page 31. Further described, at page 32, are numerous other single locus traits for preparation of single locus conversions, including a selectable marker gene

encoding phosphinothricin acetyl transferase (PPT) (e.g., a bar gene), a gene encoding an endotoxin from *Bacillus thuringiensis* (Bt), and the waxy characteristic, each of which are well known to those of skill in the art. Still further, the specification describes, at pages 32-33, the origin and breeding history of an exemplary single locus converted plant, including all steps necessary for the preparation of the single locus converted plant.

The detailed description of single locus traits and of corn plant LIZL5 is more than adequate to provide a written description of single locus conversions of corn plant LIZL5. The specification itself defines a single locus converted plant comprises essentially all of the desired morphological and physiological characteristics of the starting non-converted plant, e.g., LIZL5. While Applicants have not described every possible single locus conversion that could be introduced into corn plant LIZL5, this is not required under the written description requirement. *In re Baird*, 16 F.3d 380, 382, 29 USPQ2d 1550, 1552 (Fed. Cir. 1994). As such, Applicants have fully complied with the written description and removal of the rejection under 35 U.S.C. §112, first paragraph, is thus respectfully requested.

**E. Conclusion**

This is submitted to be a complete response to the referenced Office Action. In conclusion, Applicants submit that, in light of the foregoing remarks, the present case is in condition for allowance and such favorable action is respectfully requested.



The Examiner is invited to contact the undersigned at (512)536-3085 with any questions,  
comments or suggestions relating to the referenced patent application.

Respectfully submitted,



Robert E. Hanson  
Reg. No. 42,628  
Attorney for Applicants

FULBRIGHT & JAWORSKI, L.L.P.  
600 Congress Ave., Ste. 1900  
Austin, Texas 78701  
(512) 536-3085

Date: September 20, 2002